

AD-A053 605

RAND CORP SANTA MONICA CALIF

F/G 5/11

SURVEY RESPONSE RATES: SOME TRENDS, CAUSES AND CORRELATES, (U)

APR 77 K H MARQUIS

P-5863

NI

UNCLASSIFIED

1 OF 1  
AD  
A053605



AD No. \_\_\_\_\_  
DDC FILE COPY

AD A 053605

6

Survey Response Rates: Some Trends, Causes and Correlates,

2

10

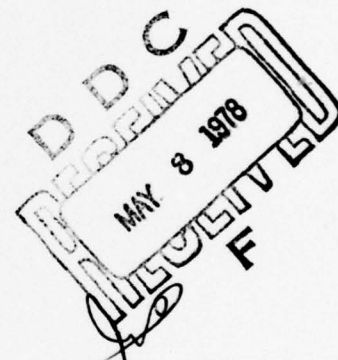
Kent H. Marquis

11

1 Apr 77

12

29p.



This document has been approved  
for public release and sale; its  
distribution is unlimited.

14

P-5863

296 6p8 Her

#### The Rand Paper Series

Papers are issued by The Rand Corporation as a service to its professional Staff. Their purpose is to facilitate the exchange of ideas among those who share the author's research interests; Papers are not reports prepared in fulfillment of Rand's contracts or grants. Views expressed in a Paper are the author's own, and are not necessarily shared by Rand or its research sponsors.

The Rand Corporation  
Santa Monica, California 90406

# Survey Response Rates: Some Trends, Causes and Correlates<sup>\*</sup>

Kent H. Marquis

April 1, 1977

## INTRODUCTION

What has happened to survey response rates? Why? and what can be done about it? Social scientists are currently concerned about trends in survey response rates as illustrated by the following recent statements:

"Pollsters are increasingly concerned about the growing reluctance of the public to be interviewed. The refusal rate has increased. It costs more to find respondents. The same pattern is evident in questionnaire surveys." (Lipset, 1976).

"There is a pronounced secular decline in the response rates from personal interviews: it is increasingly difficult to maintain response rates at reasonable levels, and despite increased effort and cost designed to maintain response rates, the decline has persisted." (Juster, 1976).

The paper is organized to explore the social changes hypothesized to underlie current response rate problems, to examine the nature of the trends based on data furnished by major survey organizations, and then to consider possible causes of the observed differences. Attention is focused mainly on the topic of in-person interviews. The response rates cited here are computed as the number of completed interviews with eligible sample units divided by the total number of eligible sample units. Bailar and Lanphier (1977) provide a discussion of current practices in defining response rates and illustrate possible problems with actual data from 36 contemporary survey research projects. The definition used here is the approach recommended by Bailar and Lanphier.

---

<sup>\*</sup>Prepared as a background paper for a session on Response Rates at the Biennial Conference on Health Survey Research Methods, Williamsburg, Virginia, May 1977. The author extends appreciation to the many persons and organizations who have furnished data for the paper. Special thanks are due to Naomi D. Rothwell of the Census Bureau who out-performed four automated literature searches in making available relevant material.



## HYPOTHESIZED SOCIAL CHANGE CHARACTERISTICS CAUSING RESPONSE RATES TO DECLINE

The conventional wisdom asserts that survey response rates have been declining over recent years because of changes in society, the effects of which the survey practitioner can neither control nor overcome. The categories of change most often mentioned are of three types: availability, privacy, and physical security.

### Availability

Increasing participation in activities outside the home makes it difficult to locate respondents for an interview. For example, in 1960 the U.S. labor force participation rate for women 18-64 years old was 42 percent. By 1974 it had increased to 53 percent (U.S. Bureau of the Census, 1975, based on Table 559). This trend should show up in increasing noninterview rates over time (especially the not-at-home component of household interview studies). This hypothesis is examined in the next section. Contrary to expectations, such a trend is not found in the studies examined.

### Privacy

Persons are said to refuse interviews because their answers may be misused. Advances in data handling technology make the personal privacy issue a real one. It is now possible to create, link, and access large banks of information organized by individual identifiers such as the social security number. The media have pointed out unsuspected use of stored personal information by government officials, credit bureaus, and other institutions. Recent concern has focused on the lack of safeguards to protect medical information in data banks (e.g., Westin (1976) and the 1975 CHSS Workshop on Privacy and Confidentiality).

Concern about privacy should manifest itself in increasing survey refusal rates. Yet the available refusal rate trend data, shown in Tables 2-4 of the next section, suggest little or no increase in the last 10-15 years.

If privacy concerns are increasing, they may represent future problems rather than adversely affecting past survey efforts. The Privacy Act of 1974 and emerging state legislation now require many of us to give extra information to potential respondents about the voluntary nature of participation and the potential uses of volunteered personal information. If privacy concerns were not salient to the public before, these required statements may make them salient now. Two recently completed studies have addressed privacy issues.\* One study, conducted by the Bureau of the Census, experimentally varied what the respondent was told about how long his answers would remain confidential (forever, 75 years, 25 years, immediately released, not mentioned). The dependent variables are interview refusal rates before and after the introductory statement. Eleanor Singer and the National Opinion Research Center have completed a national survey in which interview and item response rates are studied in relation to 3 experimental dimensions: the amount of information given to a potential respondent about the survey, the strength of the assurance of confidentiality (absolute, "except as required by law", not mentioned) and a request that the respondent sign a consent form (no request, request before interview, request after interview). Results of the studies had not been released at the time this paper was written.

#### Physical Security

It is felt that the increase in crime rates affects survey response rates in at least two ways: directly by causing reluctance to answer the door when an interviewer calls and indirectly by causing people to live in buildings with security arrangements that exclude both interviewers and crooks. Trend data relevant to prevalence of security buildings and reluctance to answer the door do not appear to exist. The problem of nonfederal interviewer access to buildings with guards does exist. For the SRC economic surveys, Juster (1976) notes a recent

---

\*My thanks to Charles Cowan, U.S. Bureau of the Census, Eleanor Singer of NORC, and Edwin Goldfield of the National Academy of Sciences for furnishing information about the study designs.

64 percent response rate for respondents in multi-unit structures, a 55 percent rate for residents in structures with more than 9 units and rates between 39-55 percent for units with such entry barriers as "guard dogs, locks (and) doormen." Nevertheless, the data in the next section suggest the overall nonrefusal component of nonresponse rates has not declined. If security building problems are increasing, it appears that other availability problems may be decreasing.

#### Other Social Change Issues

Other hypothesized changes in society are sometimes mentioned as causes of difficulties obtaining interviews. These include the idea that individuals are being over surveyed, that salespersons posing as interviewers are increasing, and respondent attitudes toward surveys and the intended uses of survey data may be changing.

A collaborative effort between the Census Bureau and Michigan's Survey Research Center includes a detailed investigation of respondent experiences with surveys along with their knowledge, opinions, and attitudes about surveys. Some of the questionnaire items are similar to ones used in earlier NORC and SRC surveys so time trends can be inferred. Until these results are available, the only "hard" data available come from a couple of recent telephone surveys by Walker Research, Inc. (1975, 1976).<sup>\*</sup> The data are not (unbiased) national population estimates.

In both surveys about 50 percent said they had been interviewed previously in the last 12 months (half of these by phone, 25 percent by mail and the remainder in the home or at a shopping center). Forty percent

---

<sup>\*</sup> Telephone interviews were completed with ten household heads (predominantly female) in each of 30 metropolitan market areas in 1974 and again in 1976 with a different sample. Residential telephone numbers were selected from directories covering each SMSA. A "one" was added to the last digit of each selected telephone number to determine the number to be called. A quota sample of 10 completed interviews per market area was obtained. Details of the quota criteria and the response rates are not furnished.



said they had experienced a sales pitch disguised as a survey and this group had slightly less favorable attitudes toward surveys.

Answers to questions about privacy and exploitation (along with the questions and response distributions eliciting the most and least favorable replies) are shown in Table 1.

Table 1  
Percentage Agreement to Selected Survey Image Statements:  
1974, 1976

<u>STATEMENT</u>	<u>PERCENT AGREE (STRONGLY, SOMEWHAT)</u>	
	<u>1974</u>	<u>1976</u>
The research industry serves a useful purpose	87	83
The information obtained in polls or research surveys helps manufacturers sell consumers products they don't want or need	40	42
Polls or research surveys are an invasion of privacy	29	27
Answering questions in polls or research surveys is a waste of time	19	22

(Source: Walker Research, Inc., 1975, 1976).

PROJECT NO. \_\_\_\_\_  
 DATE \_\_\_\_\_  
 BY \_\_\_\_\_  
 TITLE \_\_\_\_\_  
 SECTION \_\_\_\_\_  
 PAGE \_\_\_\_\_  
 TOTAL PAGES \_\_\_\_\_  
 APPROVED \_\_\_\_\_  
 REVISIONS \_\_\_\_\_  
 COMMENTS \_\_\_\_\_

For those who believe there is a causal link between prior attitudes and behavior, these results are cause for concern. Response rates (behavior) can be expected to suffer if half the telephone-owning households in a market area have been interviewed in the last year and at least 20 percent of all respondents have unfavorable attitudes about surveys. Fortunately, perhaps, the link between responses to attitude survey questions and behavior is not well established.

In the next section, the other part of the conventional wisdom is examined: Have response rates declined over the years and where are they now?

#### TIME TRENDS FOR IN-PERSON RESPONSE RATES

In this section, response and refusal rates for national studies conducted by federal and university-based survey organizations are examined. The data do not support the convention wisdom: while response rates in the 1950's may have been higher than they are now, there is no definitive declining trend over the past 10-15 years. There are differences between organizations which have persisted over time and the understanding of these differences may shed more light on determinants of response rates than the previous discussion of changes in society.

#### One-time, In-person, Population Surveys

Trends in overall response rates and refusal rates for selected studies may be seen in Table 2. The Health Interview Survey employs a national sample of 35-40 thousand households per year. The fieldwork is done by the Census Bureau and each unit is interviewed once. One adult may respond for all household members although self-response is encouraged when possible. Interviews cover health problems and use of health services, lasting from 30 minutes to over an hour. The Michigan Economic Surveys are conducted periodically by the Survey Research Center (SRC) at Michigan. The sample sizes range between 1,500 and 2,500 households in the coterminous United States. The average length of the interview has



Table 2  
Response<sup>a</sup> and Refusal Rate<sup>b</sup> Ranges For One-time, In-Person  
Interview Studies: 1955-present

YEAR	HEALTH INTERVIEW SURVEY <sup>c</sup>		MICHIGAN ECONOMIC SURVEYS <sup>d</sup>		SELECTED NATIONAL STUDIES <sup>e</sup>	
	Response	Refusal	Response	Refusal	Response	Refusal
1955-1959			83-88	5-8		
1960-1964	95-96	Not Available	79-85	6-12	76-83	13-17
1965-1969	95-96	1.2-1.3	78-83	9-14	75-76	15-18
1970-1974	96-97	1.1-1.5	78-81 <sup>g</sup> (72-76)+5	12-14 14-16	74-82	14-17
1975- <sup>f</sup>	97	1.4	(72-74)+5	15-16	<sup>h</sup>	

<sup>a</sup>The response rate is the number of completed interviews per 100 eligible households (or other sampling units).

<sup>b</sup>The refusal rate is only one component of the overall noninterview rate for eligible units. Other components (which include no one home, seasonal absence, language barrier, mental or physical problems precluding interview, etc. are omitted). The Health Interview Survey refusal rate is shown to one decimal place because rounding error would have obscured what some have seen as a trend toward increasing refusal rates over time.

<sup>c</sup>1968-1975 data adapted from Love and Turner (1975). 1960-1965 estimates derived from average noninterview rates per interviewer (Koons, 1973) assuming no correlation between an interviewer's total assignment size and her noninterview rate. Estimates for 1966-67 are not included.

<sup>d</sup>Data adapted from Scott (1971 and 1976).

<sup>e</sup>Data courtesy of Martin Frankel, technical director, NORC.

<sup>f</sup>Recent data are provisional and not always for complete calendar years.

<sup>g</sup>First range is for 1970-1971. Thereafter, a different respondent selection and interviewing procedure was instituted causing an immediate 5 percent drop in response rates. (Juster, 1976, Fig. 1).

<sup>h</sup>Person response rates (Z rates) for the 1976 medical access study, involving all 4 samples of between 1200-4700 households each ranged from 82 to 98 percent (M. Frankel, personal communication).

ranged over the years from 45 minutes to an hour-and-a half. Before 1972, the respondent was the head of the household. Specific persons are currently designated as respondents. The National Opinion Research Center (NORC) data are from selected national studies with interview lengths from 1 to 2-1/2 hours. Subject matter of the interviews varies from study to study as do the respondent rules.

The data, taken as a whole, do not indicate uniform trends toward massive respondent noncooperation over time. The overall response rates for the Health Interview Survey are high, stable, and possibly getting better over the 15 year period shown. The data from the University-based organizations suggest that during most of the past 10 years, response rates were in the 70's-to-low 80's with the SRC economic surveys getting higher rates 15 to 20 years ago compared to recent years. The decline in SRC rates beginning in the early 70's is attributed to a change in respondent rules. The SRC refusal rates exhibit a possible increasing trend over time and a similar trend could be occurring in the Health Interview Survey. As footnote *h* points out, a recent large-scale NORC national survey of access to medical care achieved response rates in the 80's or 90's, indicating that such rates are still possible to achieve currently by nonfederal organizations for national samples.

Trend data were not readily available from the large number of private organizations who conduct survey research and polls. These organizations claim to be experiencing problems as the following excerpt from the 1973 Conference on Surveys of Human Populations (American Statistical Association, 1974) shows:

"...spokesmen for a number of private survey organizations, large and small, who were queried by one of the conference participants, all report that their completion rates on general population samples now average approximately 60 to 65 percent, in spite of three or four callbacks. This recent experience is in contrast to a completion figure of 80 to 85 percent for the same firms in the decade of the sixties."

Public disclosure of detailed response rate data from private organizations might aid in reconciling the apparent differences between such claims and inferences drawn from the federal and university-based organization experiences.

#### Repeated Interview Surveys

Possibly major declines in response rates can be found in the short term panel surveys which seek continued respondent cooperation. Time trends in response rates for three studies of this type, all conducted by the Bureau of the Census, are examined next. The data indicate the Census Bureau has been able to maintain very high response rates over the years but may be experiencing a slight contemporary increase in refusals.

The Current Population Survey has a current annual sample size of 48,000 households. A household respondent is interviewed about labor force and other data monthly for four months, not interviewed for eight months, and interviewed again monthly for another four months. In-person interviews are attempted during a designated three of the eight interview months. Telephone interviews may be substituted during the other months. The Current Population Survey has maintained consistently high response rates and low refusal rates for the last 10 years as shown in Table 3. If there are any trends, they are for the overall response rates to be increasing slightly over time and possibly for refusal rates to be increasing slightly. This implies that if refusals have increased, there is a more than compensating decreasing trend in the other components of nonresponse.

The Current Medicare Survey is also a short term panel study conducted by the Census Bureau. It involves 15 monthly personal (in-person or telephone) interviews which last about 10 minutes with 6,000 Medicare enrollees. Respondents report expenditures for medical goods and services incurred over the preceding month. According to Greene (1976) average response rates over entire panel periods (15 months each) have averaged about 97 percent in 1974, 1975, and 1976.\*

---

\* Jack Scharff, U.S. Health Care Financing Agency, recently compiled CMS trend data for a longer time period. His preliminary analysis indicates that the average refusal rate in the CMS aged sample has increased from about 1-1/2 percent to about 3 percent since 1969-70. The trend in refusals may be in the opposite direction for the disabled sample.



Table 3  
Response and Refusal Rates Ranges for the Current Population  
Survey: 1965-Present<sup>1</sup>

<u>Year</u>	<u>Response</u> <sup>2</sup>	<u>Refusal</u> <sup>2</sup>
1965-1969	95-95	1.2-1.3
1970-1974	96-96	1.1-1.5
1975-1976	97	1.4

<sup>1</sup>1965-1974 data adapted from Love and Turner (1975) with 1975 and the first 11 months of 1976 data from "Current Population Survey Sample Size and Noninterview Rates--November 1976" compiled by the Reinterview Design and Analysis Section, Statistical Methods Division, U.S. Bureau of the Census, 8 December 1976.

<sup>2</sup>These are average rates over all interviewing waves. Within recent panels, there is a tendency for refusals to increase in later waves and other nonresponse components (e.g., not-at-home) to decrease.

Table 4  
Response and Refusal Rates for the Interview Component of the  
1972-73 Consumer Expenditures Survey by Year and Wave

<u>Wave</u>	<u>Response Rates</u>		<u>Refusal Rates</u>	
	<u>1972</u>	<u>1973</u>	<u>1972</u>	<u>1973</u>
1	95	94	3.3	4.4
2	91	90	6.9	7.6
3	88	89	8.6	9.1
4	88	89	10.0	9.9
5	88	89	10.8	10.0

(Source: Greene, 1976).

Quarterly Consumer Expenditure Panels were conducted with a sample of 11,000 households in 1972-73 by the Census Bureau. For the interview component, households engaged in interviews lasting 2-3 hours in each for five consecutive quarters. Although not able to maintain response rates over 95 percent as in its other studies, the Census Bureau was able to maintain a very impressive level of cooperation throughout all waves. These data (reproduced from Greene, 1976) are in Table 4.

#### Nonavailability

To complete the picture, trends in the nonavailability component of nonresponse are shown in Table 5. The numbers are the difference between the total nonresponse rate and the refusal rate shown in previous tables. The largest component of this residual are elements classified variously as not-at-home, unable to contact, or respondent absent.

These rates also fail to show large changes over time. The studies in which the Census Bureau or NORC did the fieldwork do not show increasing availability problems. The SRC data do indicate a recent increase but this may be due to the change in respondent rule.

The lack of trends may only reflect successful efforts made by these organizations to overcome availability problems, for example, by increasing the number of calls made per completed interview. Call data are not generally available to the research community (they are internal organizational information not necessary to the interpretation of published survey results) so it is not possible to test the hypothesis. However, Juster (1976) notes that the number of contacts per household in a 1973 SRC economic study was considerably lower than in a 1976 study.

#### Urban Area Response Rates

Survey response rates are often said to be lower in urban areas than in smaller or less densely populated areas. Available data lend only equivocal support to this hypothesis.

Scott's (1971, 1976) data for the SRC Economic Surveys (see Table 6) show that response rates are lower and have declined more rapidly in the large, self-representing SMSAs than in other areas. The recent (1975-76) rates have been especially low, close to those mentioned for private organizations at the ASA Conference on Surveys of Human



Table 5

Ranges of Nonresponse Rates Exclusive of Refusals<sup>a</sup> from Selected Surveys by Year

YEAR	HEALTH INTERVIEW SURVEY <sup>b</sup>	MICHIGAN ECONOMIC SURVEYS <sup>c</sup>	SELECTION NATIONAL STUDIES <sup>d</sup>	CURRENT POPULATION SURVEY <sup>e</sup>
1955-1959		7-10		
1960-1964		7-12	4-8	
1965-1969	3-3 <sup>e</sup>	6-11	7-9	3-3
1970-1974	2-3	7-8 <sup>f</sup>	4-6	3-3
1975 <sup>g</sup>	2	9-12		
		10-12	9	2

<sup>a</sup>This is an indirect measure of respondent availability problems. The published data use different definitions and degrees of disaggregation for components of nonresponse not due to refusals. The residual rate which is shown is the difference between the total nonresponse rate and the refusal rate. It includes noninterviews because of language or health problems in addition to the nonavailability components mentioned in the text.

<sup>b</sup>From Love and Turner (1975).

<sup>c</sup>From Scott (1971, 1976).

<sup>d</sup>Furnished by Martin Frankel, NORC.

<sup>e</sup>Years 1968 and 1969 only.

<sup>f</sup>1970-71 and 1972-74 data shown separately due to a change in respondent rules in the latter years. The revised respondent rule applies to the 1975-76 data also. The apparent time trend is confounded with the effects of the altered respondent rule.

<sup>g</sup>Recent data are provisional and not always for complete calendar years.

Populations (American Statistical Association, 1974). However, at least part of the reason for low contemporary rates is due to a shift to more demanding respondent rules.

Recent Census Bureau experience (Table 7) comparing rates obtained in separate urban area studies with national rates for the Annual Housing Survey and The National Crime Survey do not exhibit the expected discrepancy. As the source articles point out, the SMSA sample field periods are considerably longer than those for national sample assignments, providing extra time to locate respondents and convert refusals. Walsh's (1976) analysis of expenditure diary response rates (Table 8) shows the central city and SMSA rates to be lower than for other areas in 1972 but the differences narrowed appreciably in the following year. As a whole these data suggest that urban area response rates can present problems, but ones that at least the Census Bureau has been able to overcome.

Finally, Eve Fielder at UCLA was kind enough to provide response rate data for the Los Angeles Metropolitan Area Survey which has conducted 11 urban area studies since 1970. There is a good deal of variance in the overall nonresponse rates and all eleven points to not produce a linear time trend significantly different from zero. The refusal rates, on the other hand, do exhibit a statistically significant increase over time averaging  $3/4$  of 1 percent per year.

#### CONCLUSIONS ABOUT TIME TRENDS IN RESPONSE RATES

The available data do not show a major decline in response rates over the past 10-15 years. The conclusion to be drawn, however, is not that high response rates are as easy to achieve now as in the past. This kind of conclusion would require an analysis of cost data or other indicators of field effort and these data are not generally available. Also response rate data from a more representative sample of survey studies would be required.

The available data are sufficient to suggest two things:

1. Response rates even in urban areas are still under the potential control of the field designer. The changes in society which have taken place have not doomed survey research to failure in the future.
2. High contemporary response rates can be achieved, at least by some organizations, if sufficient resources and design skill are applied to the task.

In the next section, variables other than changes in society which may affect response rates are considered.

Table 6  
Average Response Rates for Michigan  
Economic Surveys by Large SMSA and Other Areas:  
1960-1976

<u>YEAR</u>	<u>LARGE SMSA</u>	<u>OTHER AREAS</u>
1960-1964	75	82
1965-1969	74	83
1970-1974	71	79
1975-1976	61	78

Source: Adapted from Scott (1971, 1976).

Table 7  
National Sample and Urban Sample Average Response Rates  
For the Annual Housing Survey and National (local) Crime Survey

<u>YEAR</u>	<u>ANNUAL HOUSING SURVEY</u>		<u>CRIME SURVEY</u>	
	<u>SMSA Studies</u>	<u>National Sample (longitudinal)</u>	<u>Urban Area Studies</u>	<u>National Sample (Panels)</u>
1972			95	95
1973		97	95	96
1974	96	97	97	96
1975		96		96

Source: Adapted from Love and Turner (1976) and Greene (1976).

Table 8  
Response Rates for the Diary Component of the National Consumer Expenditures  
Survey by Type of Place

<u>FISCAL YEAR</u>	<u>Central City Within SMSA</u>	<u>Other SMSA</u>	<u>Not SMSA</u>
1972	75	81	82
1973	88	89	92

Source: Walsh (1976, Table 3)



### CAUSES AND CORRELATES OF RESPONSE RATES FOR IN-PERSON INTERVIEWS

If there isn't a universal decline in survey response rates we should turn our attention away from external causes toward variables under the control of the survey designer. Some recent literature is reviewed briefly in this section followed by a discussion of other things that may account for observed variation in response rates among organizations.

#### Auspices

Since the Census Bureau is relatively more successful than other survey organizations, one wonders if there is some magic in the name which overcomes nonresponse problems. As Love and Turner (1975) point out, the Bureau has a strong "brand name", citizens may feel an obligation to cooperate with their government, and the uses of census data, such as estimates of the unemployment rate, are well known. The name of the data collecting agency cannot affect not-at-home rates but it can convert potential refusals and chronically broken appointments.

Sudman and Ferber (1974) split their sample of Chicago area households into those approached in the name of the Census Bureau and those approached in the name of the Illinois Survey Research Laboratory. Respondents were asked to grant an initial interview and to report household expenditures for two weeks either by telephone or using a diary. Initial interview response rates were low (around 60 percent) with the Bureau auspices producing nonsignificantly more cooperation in the suburban sample. Full or partial cooperation in reporting expenditures over the next two weeks showed similar, nonsignificant trends.

The effect of auspices has been tested again in a joint Census-SRC study of confidentiality and attitudes. Each organization was assigned half of each cluster of households for interviewing. Results are to be available in the 1977 Proceedings of the Social Statistics Section, American Statistical Association.

#### Seasonality

Available data indicate that nonresponse rates (or the not available component) increase slightly during the summer. Scott (1971) examined 29 economic surveys over a 15 year period and found summer nonresponse



rates about 6/10 of one percent above spring and fall rates on the average. Interviewer nonresponse rates on the Health Interview Survey (Koons, 1973) were uniformly higher during the summer quarter (July-September) for the years examined (1958-1964). The Current Population Survey temporarily absent component of nonresponse averaged 1.2 percent in June - August 1976 compared to about 0.6 percent in other months of 1976. For most purposes, the magnitude of the summer seasonality bias would not appear great enough to warrant special concern. Palmer (unpublished), however, shows that the seasonal increase in CPS nonresponse and the 1965 nonresponse imputation procedures results in a statistically significant bias in published estimates of the labor force category "with a job, not at work."

#### Callbacks

It is worth remembering that effort in the field is positively correlated with response rates. Sudman (1967) and Kish (1965) show the productivity of each additional callback on response rates for the 1950's and 1960's. Scott (1976) shows that the marginal productivity of callbacks has not changed in SRC economic studies in the 1973-76 period, e.g., the third callback (4th call) yields a 62-66 percent interview rate. Health Interview Survey data indicate the 4th call yields a 91 percent rate. After the second call the response rate is 74 percent. (Sprately, 1975). Scott's (1971) data indicate that limiting callbacks to three in 1961 reduced response rates at least 5-8 percent compared to rates achieved in similar studies without the restriction in adjacent years. Within the published ranges, it is clear that increasing callbacks results in increasing the number of completed interviews with eligible sample units. (This is one of the few causal relationships we "know for sure" in survey design). The Census Bureau's recent paper on best times to call (Weber, 1973) should help increase the efficiency of calls in the field for a variety of studies using different respondent rules.

The effectiveness of a callback at the margin may also depend on the definition of a call (e.g., a visit while the interviewer is in the neighborhood vs. a deliberate attempt at a different time and day), the length of the field period, the interviewer's workload, and the amount of clustering in the sample. Within the total survey design context, it is theoretically possible to set the number of calls to be made per unit, cluster size, length of field period, number of interviews, and size of assignments so as to optimize costs and the resulting magnitude of nonresponse bias affecting inferences from the data.

#### Interview Length and Other Burdens

Interview length may have some effects on response rates, especially if length is very short or very long. NORC data, furnished by Frankel, include two, 20-minute national sample studies conducted in 1962 and 1966. Response rates were 90 and 84 percent compared to rates closer to 75 percent for studies using interviews lasting an hour or more in similar years. The SRC economic studies contain a narrower range of variation in average interview length (45-90 minutes). Scott (1971) reports the correlation between response rate and length to be zero or "slight" depending upon assumptions used to correct for secular time trends. The studies conducted by the Census Bureau cited earlier range from a few minutes to several hours in average interview length. Response rates drop to 90 percent only for the extremely long interviews but this may be due to the subject matter (expenditures). Dillman (1977) shows mail rates drop if length exceeds 12 pages.

The Market Research Society in Great Britain (MRS, 1976) points out that sources of burden (on both interviewers and respondents) other than interview length have increased over time. Examples cited include use of batteries of "semantic scales" and intricate questionnaire designs to meet optical scanning processing requirements. Such effects are seen as indirectly affecting response rates by interfering with rapport and causing respondents to be more reluctant to participate in future surveys.

The Walker Research, Inc. study (1975, 1976) indicates a minority of previously surveyed respondents report dissatisfaction with length (17-25 percent), overly personal questions (16-19 percent) or overly difficult questions (8-9 percent). Dissatisfaction with length was clearly related to perceived (recalled) length. Almost half of those who were interviewed for 11-20 minutes objected to the length and 63 percent of those interviewed for more than 20 minutes felt the survey was too long. It would be unwise to conclude, however, that interview length influences response rates via respondent attitudes. If length affects interview rates, it is probably because of the indirect effects on interviewer workload and constraints on the ability to schedule interviews.

#### Advance Letters, Brochures, Prior Appointments

The Census Bureau has prepared a recent bibliography on this subject for those who wish to pursue the topic further. (Survey Methodology Information System, Undated-a). My interpretation of the literature is that effects of activities prior to the at-the-door contact are equivocal. The advance material does provide information to the respondent upon which he may base his cooperation decision. This is fine if the decision to respond is positive but the other outcome is not unlikely and the reluctance encountered at the door is now much firmer than it might have been. Advance material and appointments can reduce interviewer travel and salary costs, possibly enough to warrant a lower overall response rate. The use of advance contact is certainly a dimension to be considered in the total survey design.

#### Incentives

Paying respondents to cooperate was discussed at the last conference (NCHSR and NCHS, 1975, pp.16-17). At this point, a simple generalization about the effects of compensation on response rates isn't possible. The literature indicates incentives do increase response rates in mail surveys but the upper ranges (payments or gifts over \$1 haven't been tested adequately). The improvements noted are increasing otherwise low return rates to moderate levels, (Kanuk and



Berenson, 1975). Payments appear to induce more people to take a health examination although apparently they aren't large enough to overcome the fear of embarrassment which some women experience (Bryant et al., 1973). Compensation may help sustain cooperation in diary panel studies lasting more than two weeks (Ferber and Sudman, 1974). Payments are not cost effective in shorter diary panels (Walsh, 1976). The use of monetary incentives to increase response rates for in-person interviews has received little experimental attention. Dohrenwend (1971) reports no effect on a \$5 honorarium on initial and repeat interview response rates in an urban area. On the other hand, Chromy and Horvitz (1974) show that a \$5 to \$20 payment can motivate more young adults in a national household survey to complete knowledge tests compared to a no-incentive condition. The latter research indicates that varying the amount paid by the number of test packages completed by the respondent is cost effective. This condition has been adopted in succeeding surveys.

More information about incentives may be obtained by consulting the Census Bureau bibliography (Survey Methodology Information Service, Undated-b), and Ferber and Sudman (1974).

#### Interviewers

Some interviewers are more successful than others at getting completed interviews. Barbara Bailar has done extensive work in this area. Her report (Bailar and Lanphier, 1977) comments on the important amount of variance in response rates contributed by interviewers. For a review of empirical studies, see Inderfurth (1972).

#### Respondent Rules

In many surveys it is possible to consider accepting responses from informants about sample person characteristics as a method of reducing costs and nonresponse. Kovar and Wright (1973) report the results of the Health Interview Study experiment requiring 100 percent self response. For the experiment, interviewers were asked to contact households initially at usual times. There was a possible slight variation in initial time of call (22 percent after 6 p.m. to self-responding households vs. 19 percent to other units) but it produced 74 percent of adults at home on the initial call (vs. 63 percent in the household respondent treatment).

In both groups the household response rate was the same 96 percent. The person response rate (Z-rate) dropped from 99.8 percent to 98.7 percent in the self response treatment. 96 percent of the adults responded for themselves in the condition requiring it whereas 67 percent self responded when it was not required. Costs increased 17 percent (probably an upper bound estimate since interviewers were not allowed flexibility in timing initial calls). When SRC switched its respondent designation procedures, response rates declined. Juster (1976) notes a 5 percent reduction when the designated respondent was changed from the household head (or spouse if necessary) to a specifically selected household member over age 17 (with proxy responses not permitted). In Census Bureau studies requiring self-respondents, the effect on response rates is to decrease them 1-2 percent (see for example, Love and Turner's discussion of the National Crime Survey, 1976). The difference between household response rates and the overall person response rates in the recent NORC medical access study ranged from 2 to 6 percent (M. Frankel, personal communication).

#### Organizational Features and Quality Control

The most parsimonious hypothesis accounting for differences in response rates is that some organizations structure field activities more effectively than others. If society has changed, these organizations have been able to adapt without a great change in efficiency. It is well beyond the scope of this paper to present comparative management analyses of the various organizations and projects kind enough to furnish response rate problems and some key organization features which may differ from the norm for nonfederal survey groups.

A major feature is that the bulk of Census Bureau sample research is with continuous, large scale studies. With ongoing programs it is possible to identify problems, try out alternative solutions, and implement them directly. Continuous studies enable the organization to maintain a large, permanent field staff who become experts in one



particular kind of interview. Expertise cumulates so that successful procedures can be taught to the entire staff in refresher training sessions. Organizations serving the one-time, customized survey market (often not requiring national samples or requiring more staff in one of the PSU's than is normally available) are less able to maintain a large, permanent field staff and find it difficult to correct problems during short field periods. Studies are different enough so that it is not always possible to generalize effective procedures from one to another.

Noninterview Standards and Quality Control. The Census Bureau sets very high standards for response rates and features these requirements prominently in training sessions and quarterly reviews of individual interviewer performance. Performance reviews are based on observations of fieldwork, results of reinterviews, and a tabulation of questionnaire entry error rates (Greene, 1976). Interviewer productivity (and other performance) is rewarded by cash awards, promotion, salary increases and (if not full time) additional work opportunities. Poor performance results both in additional monitoring and being placed on probation. Probation time does not count toward within-grade tenure needed for automatic salary increases (Green 1976).

Work Facilitation by the Organization.<sup>\*</sup> Periodic refresher training sessions are held to discuss reasons given by reluctant respondents and methods of responding to them. This procedure, of course, is maximally effective in continuous studies. The Bureau has the advantage of accumulated experience with ongoing surveys and can set (and enforce) realistic assignment sizes and completion deadlines for each sample area. It is not as easy to do this for one-time special studies whose field requirements and problems vary across surveys. The Bureau provides interviewers with information on the best times to make initial calls to locate particular kinds of respondents. On some studies, the interviewer is required to contact the entire assignment early in

---

<sup>\*</sup> Discussion based on Greene, 1976; Love and Turner, 1975; and Walsh, 1976.

the field period. For most studies, the office is notified of potential refusals and takes specific steps to persuade the respondent to cooperate when the interviewer calls again. Donny Rothwell (personal communication) points out that the local office can invoke a law prohibiting doormen (etc.) from denying the access of a census interviewer to units in a building.

Walsh presents the fieldwork case history of the Census Bureau's consumer expenditure diary survey. Households made daily entries into an expense diary over a two week period. The pretest in the Chicago area suggested cooperation rate problems (around 50 percent). It also demonstrated the impracticality of placing diaries in households on specific days. For the first part of the main study, more intensive interviewer training was given and an experiment paying respondents conducted. During the first 3 months, total noninterview rate was over 25 percent with refusals at 11 percent and a large percentage (up to 8 percent) of households not contacted during the 6-day field periods. The incentive treatment (\$5, \$10) had small, positive but not statistically significant effects on the interview rate and was discontinued part way through the quarter. The usual exhortations to field offices and interviews to improve performance were made and it was hoped that cooperation would improve on the basis of increased staff experience and dropping the complexities of the remuneration experiment.

Second quarter rates, however, showed very little improvement. The only major change was a reduction in the temporarily absent (vacations, etc.) rate, reflecting, in part, the fact that fewer households are on vacation in the fall. Being a continuous (2-year) survey, opportunities for action to improve performance were available. Steps taken included provision of additional information by the office to locate poorly defined sample addresses, increasing the field staff, extending the field period by one day, requiring the interviewer to contact someone in each sample household early in the field period,

↓  
The author discusses the problem that, if

reporting refusals to the supervisor early for further action, and re-training interviewers (emphasizing refusal conversion strategies). Non-response dropped from 24 percent to 18 percent in the next quarter with the major declines in the nonrefusal (temporarily absent, unable to contact, other) components. Improvement continued over the succeeding 15 months with diary response rates around 90 percent and refusals in the 6-7 percent range. Central city response rates averaged about 88 percent.

#### CONCLUSIONS ABOUT CORRELATES OF RESPONSE RATES

If in-person interview response rates are not affected importantly by the current social changes, <sup>are the lower rates</sup> can we say how they are determined? From the foregoing discussion, it appears that seasonality and interview length don't have the uniformly strong, negative effects that some suspect. Hypothesized positive forces such as Census Bureau auspices, using advance letters, and offering payment aren't as powerful as we <sup>one</sup> might hope. Callback strategies can account for a meaningful amount of variance and respondent rules have some effect on rates (e.g., 1-6 percent) and on costs (e.g., a household respondent rule can save as much as 17 percent over a complete self-response rule).

Interorganizational differences are large, and not attributable entirely to differences on the above dimensions. Three additional dimensions may be responsible for the relative success of the Census Bureau: the long term nature of the studies it undertakes (creating the potential for improvement over time), things done by the regional office to facilitate fieldwork, and the extensive quality control activities which monitor a wide range of important performance variables for individual interviewers and provide both immediate reinforcement (positive and negative) and corrective action (e.g., retraining) as appropriate. These are applications of the most powerful principles offered by psychological theories of motivation and performance. While it will be much harder for nonfederal survey organizations to apply these principles, the investment may have a substantial payoff.



## REFERENCES

- American Statistical Association, "Report on the ASA Conference on Surveys of Human Populations," *The American Statistician*, 1974, 28, pp.30-34.
- Bailar, Barbara and C. Michael Lanphier, *Development of Survey Methods to Assess Survey Practices*. Report to the National Science Foundation, April 1977.
- Bryant, E. Earl, Mary Grace Kovar and Henry Miller, "A Study of the Effect of Remuneration Upon Response in the Health and Nutrition Examination Survey - United States," *Vital and Health Statistics*, Oct. 1975, Series 2, No. 67.
- Chromy, James R. and Horvitz, Daniel G., "The Use of Monetary Incentives in National Assessment Household Surveys" *Proceedings*, Social Statistics Section, American Statistical Association, 1974, pp.171-179.
- Dillman, Don A. *Mail and Telephone Data Collection Methods*, Wiley-Interscience, forthcoming.
- Dohrenwend, Barbara Snell "An Experimental Study of Payments to Respondents" *Public Opinion Quarterly*, 1971, 34, pp.621-624.
- Ferber, Robert and Seymour Sudman, "Effects of Compensation in Consumer Expenditure Studies," *Annals of Economic and Social Measurement*, 1974, 3, pp.319-331.
- Greene, Stanley, "Maintaining High Response Rates in Studies Involving Repeated Personal Interviews," presented at a seminar sponsored by the American Marketing Association, October 7, 1976.
- Inderfurth, Gail Poe, "Investigation of Census Bureau Interviewer Characteristics, Performance and Attitudes: A Summary," Working Paper 34, Bureau of the Census, U.S. Department of Commerce, June, 1972.
- Juster, F. Thomas, "Methodology, Data Quality, and Interpretation: Some Notes on Consumer Surveys," paper prepared for the Conference on the Economic and Social Outlook, The University of Michigan, November, 1976.
- Kanuk, Leslie and Conrad Berenson, "Mail Surveys and Response Rates: A Literature Review," *Journal of Marketing Research*, 1975, 12, pp. 440-453.
- Kish, Leslie, *Survey Sampling*, John Wiley and Sons, New York, 1965.
- Koons, David A., "Quality Control and Measurement of Nonsampling Error in the Health Interview Survey," *Vital and Health Statistics*, March, 1973, Series 2, Number 54.



- Kovar, Mary Grace and Robert A. Wright, "An Experiment with Alternate Respondent Rules in the National Health Survey," *Proceedings of the Social Statistics Section, American Statistical Association*, 1973, pp.311-316.
- Lipset, Seymour M., "The Wavering Polls," *The Public Interest*, 1976, No. 43, pp.70-89.
- Love, Lawrence T. and Anthony G. Turner, "The Census Bureau's Experience: Respondent Availability and Response Rates," paper prepared for presentation at the 135th annual meeting of the American Statistical Association, Atlanta, Georgia, 1975.
- M.R.S. (Market Research Society), "Response Rates in Sample Surveys: Report of a Working Party of the Market Research Society's Research and Development Committee," *Journal of the Market Research Society*, 1976, 18, pp.113-142.
- NCHSR and NCHS (National Center for Health Services Research and the National Center for Health Statistics) "Advances in Health Survey Research Methods: Proceedings of a National Invitational Conference," Airlie, Virginia, 1975, DHEW Publication No. (HRA) 77-3154.
- Palmer, Susan, "On the Character and Influence of Nonresponse in the Current Population Survey," Unpublished paper, Bureau of the Census, U.S. Department of Commerce, Washington D.C. (no date).
- Scott, John C. "Response to P.468683," memorandum to the Omnibus Steering Committee, Survey Research Center, The University of Michigan, July 13, 1976.
- Scott, John C., "Response Rate Trends 1955-1970, and Response by Season, Size of Place of Residence and Length of Interview," Technical Report 5a, Field Office, Survey Research Center, Institute for Social Research, The University of Michigan, Ann Arbor, 1971.
- Sudman, Seymour, *Reducing the Cost of Surveys*, Aldine Publishing Co., Chicago, 1967.
- Sudman, Seymour and Robert Ferber, "A Comparison of Alternative Procedures for Collecting Consumer Expenditure Data for Frequently Purchased Products," *Journal of Marketing Research*, 1974, 11, pp.128-135.
- Survey Methodology Information System, "Use of Advance or Preliminary Letters and Inserts," Statistical Research Division, Bureau of the Census, U.S. Department of Commerce, Washington, D.C. (undated-a).
- Survey Methodology Information System, "Use of Incentives," Statistical Research Division, Bureau of the Census, U.S. Department of Commerce, Washington, D.C. (undated-b).

Sprately, Ernell, "An Analysis of the Efficiency with which Health Interview Survey Data Were Collected During the First Three Quarters of 1972," Unpublished Trainee Report, National Center for Health Statistics, July 13, 1973.

U.S. Bureau of the Census, *Statistical Abstract of the United States: 1975*, (96th Edition). Washington, D.C. 1975.

Walker Research, Inc. "Updated Survey Indicates Little Change in Industry Image," *The Marketing Researcher*, October, 1976.

Walker Research, Inc., "Favorable Findings Revealed by Walker Industry Image Study," *The Marketing Researcher*, April 1975, (800 Kune Rd., Indianapolis 46250).

Walsh, Thomas C., "Selected Results from the 1972-73 Diary Survey," Paper presented at a seminar sponsored by the American Marketing Association, October 7, 1976.

Weber, Dean, "Who's Home When," Working Paper No. 37, Bureau of the Census, U.S. Department of Commerce, Washington, D.C., January, 1973.

Westin, Alan F. *Computers, Health Records, and Citizen Rights*, National Bureau of Standards, Monograph No. 157, U.S. Department of Commerce, Washington, D.C., December 1976.